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NAVY DEPARTMENT

BUMED NEWS LETTER

a digest of timely information

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The Prevention of Bacterial Respiratory Tract Infections by Sulfadiazine Prophylaxis: In the first year of World War II a significant development in the armed forces was the increasing morbidity rate from respiratory infections; in the Navy the majority of the important respiratory diseases were caused by hemolytic streptococcus. At U. S. Naval Training Centers situated in northern states these infections have handicapped recruit training. The experiences of one of these stations will illustrate the importance of streptococcal infections in the Navy.

Early in 1943 a Training Center in the northwest, with an average strength of 43,000 in one year, had an outbreak of measles. This was followed by many

types of respiratory infections including: 4,973 cases of scarlet fever; 1,375 cases of rheumatic fever; 1,383 cases of pneumonia; 131 cases of meningitis; and at least 50,000 infections of the nasopharynx or tonsils. During the summer months the activity of meningococcus and pneumococcus subsided. However, hemolytic streptococcus maintained its pathogenicity, and late in 1943 this bacterium manifested an increased virulence. It became highly communicable; it produced rather intense scarlet fever; it precipitated severe rheumatic attacks in susceptible subjects; it became invasive. The acquisition of invasiveness by this microorganism was accompanied by the rapid development of lytic phenomena in the patient, e.g., pericarditis, empyema and other suppurative lesions. Furthermore, strains of this bacterium identified serologically as types 17, 1 and 19 maintained their pathogenicity when transplanted by carriers to other geographical environments and even initiated streptococcal outbreaks at naval activities situated in southern states.

A Program for the Control of Streptococcal Infections: The Navy's enormous loss of man-days to the Streptococcus hemolyticus was only one of the compelling reasons for instituting a Streptococcal Control Program. For military and civilian welfare it became essential to prevent the dissemination of the streptococcus among naval personnel, to prevent the induction of rheumatic fever with the development of incapacitating heart disease, to prevent the invasion of the streptococcus into deep tissues with the formation of suppurative lesions and to prevent the spreading of this highly virulent organism from one naval activity to another. To attain these objectives, a long-term Streptococcal Control Program was instituted in November 1943.

The first objective of this program was to check the dissemination of respiratory pathogens in the winter of 1944. For this purpose, the use of prophylactic doses of sulfadiazine seemed the method of choice. To test the applicability of mass prophylaxis under controlled conditions and to determine a standard prophylactic dose of sulfadiazine, programs were designed for five large northern Training Stations with high respiratory disease rates. Groups of trainees were then selected to receive sulfadiazine prophylaxis and comparable groups to serve as untreated controls. At each station these groups were placed under the supervision of an Epidemiology Unit. The duties of each Unit included the following:

a. Supervise the distribution of sulfadiazine by line officers.
b. Administer the collection of clinical data on all men reporting to the sick bay with respiratory symptoms.
c. Check the diagnoses of all men receiving sulfonamide who were admitted to the sick list with respiratory infections.
d. Obtain throat cultures on all such individuals and a sample (10%) of individuals contracting respiratory infections in untreated control groups.

e. Isolate the beta hemolytic streptococcus and ship the organisms in pure culture to the National Naval Medical Center, Bethesda, Maryland, for grouping, typing and testing of drug-fastness.

On December 1, 1943, this controlled program was initiated at five Training Stations. Data on the incidence of respiratory infections in the "treated" and control groups were collected for three months. With the accumulation of these data, the effectiveness of mass prophylaxis was manifest. It was then decided to extend the program to three other naval activities experiencing a high incidence of streptococcal infections and to discontinue the use of untreated controls in the five naval activities at which the sulfadiazine program was already in operation. Continuous mass prophylaxis was accordingly extended to about fifty camps of eight naval activities, and this program was continued throughout the spring months. The present paper is a preliminary report limited to observations on sulfadiazine prophylaxis instituted under three different conditions at three naval training camps.

The Effect of Sulfadiazine Prophylaxis Initiated During a Streptococcal Outbreak at Activity A: Naval Activity A, situated in the city of Chicago, had experienced a high rate of infections occasioned by the great expansion of intensive training with a rapid turnover in personnel. Early in the winter its training program was seriously handicapped by a high incidence of streptococcal infections, which were subsequently identified as due to types 17, 3 and 30. During December 1943 more than 25 per cent of the station's complement were admitted to the sick list with respiratory infections; in all, 27,966 man-days, or about 10 per cent of the available man-power, were lost. The incidence of these infections continued to be high in January, and a large number of men developed rheumatic fever. By February 1944 the hospital admission rates (annual admission rates per 1,000 strength) for respiratory diseases and sequelae had reached extraordinary heights: for catarrhal fever 988, for tonsillitis 426, for scarlet fever 171, and for rheumatic fever 70. The urgency of the situation and the expectancy of an increase in these rates during February and March were cogent reasons for placing all station personnel on sulfadiazine prophylaxis.

Results of Sulfadiazine Prophylaxis: The institution of prophylaxis, one gram of sulfadiazine daily, on February 8, 1944, was followed by a rapid fall in the incidence of disease. For example, the scarlet fever rate (annual admission rate per 1,000 strength) fell to 70 in the first week, 45 in the second and 0 during the third. The rheumatic fever rate rose during the first week of prophylaxis to 87 and then fell progressively by weeks to 45, 45, 19 and 6. The fall in incidence of respiratory diseases observed in February became even more marked in March and April 1944. This was not to be expected from the experience of 1943. This phenomenal change was not observed at other naval activities in Chicago during March and April 1944. A comparison of the

monthly morbidity rates for respiratory infections at Activity A receiving sulfadiazine prophylaxis after February 8 and for five other naval activities in Chicago receiving no prophylaxis is shown in Figure 1.

In summary, the institution of sulfadiazine prophylaxis, one gram daily, to all hands at Activity A on February 8, 1944, during a severe streptococcal outbreak was accompanied by a precipitous, contra-seasonal decline in streptococcal infections and was followed by a marked drop in the incidence of rheumatic fever.

The Effect of Sulfadiazine Prophylaxis Instituted in Half a Camp at the Onset of a Scarlet Fever Outbreak: Camp 1 of a Naval Training Station had served as an untreated control group for the prophylactic program during the early winter months of 1943-1944. The incidence of streptococcal infections among these 5,000 men had been moderate during December and January. About the middle of February the scarlet fever rate began to rise rapidly, and this was accompanied by a marked increase in the occurrence of other streptococcal respiratory diseases. Most of these infections, irrespective of the presence or absence of a scarlatinal rash, were caused by hemolytic streptococcus Group A, type 19. On February 25 one-half of the personnel of this camp was placed on a prophylactic dose of one gram of sulfadiazine daily; the other half remained untreated. The effectiveness of sulfadiazine in preventing further spread of this highly communicable strain of hemolytic streptococcus in recruits receiving prophylaxis is shown in Figure 2.

The Effectiveness of Sulfadiazine in Preventing Implantation of Hemolytic Streptococcus in a Recruit Camp: The foregoing observations indicated that one gram of sulfadiazine administered daily was effective in checking a streptococcal outbreak, either when well advanced (Activity A) or in its early state (Camp 1). The following observations will serve to show that as little as 0.5 gram of sulfadiazine administered daily prevents the implantation of hemolytic streptococcus in a recruit group (Camp 2) with a complete turnover of personnel every 4 to 6 weeks.

In November 1943 when the incidence of streptococcal infections was low, this camp was divided into two groups for the purpose of this investigation. All even-numbered companies were placed in Group A which received no chemoprophylaxis and all odd-numbered companies were placed in Group B which received 0.5 gram of sulfadiazine daily. On March 1 both groups were placed on a prophylactic regime of sulfadiazine, one gram daily. The incidence of respiratory symptoms and respiratory diseases of Groups A and B is shown in Figure 3.

It is seen in Figure 3 that the group receiving sulfadiazine prophylaxis had a low incidence of respiratory infections. This low incidence in Group B

was maintained for three months and perhaps greater protection was afforded during March when the daily prophylactic dose of sulfadiazine was increased from 0.5 gram to 1.0 gram. The incidence of sick call visits for respiratory symptoms in the untreated group was twice that in the treated group, and the incidence of respiratory diseases requiring bed care in the untreated group was about three times that in the treated group. In both, the difference in incidence between untreated and treated groups is statistically significant. This difference is even more striking for streptococcal infections. The incidence of respiratory disease probably caused by hemolytic streptococcus in the untreated group was eleven times the incidence in the treated group. Frank streptococcal infections in the untreated group had an incidence twenty-four times that in the treated group.

Evaluation of the Potential Liabilities and Assets of Sulfadiazine Prophylaxis: When this program was initiated, there appeared to be three potential dangers inherent in sulfadiazine prophylaxis: (a) sensitization of patients to sulfonamide; (b) induction of severe, irreversible drug reactions; (c) development of drug-fastness by respiratory pathogens.

Sensitization of patients: Mild evanescent dermal drug sensitization phenomena occurred in all three groups receiving sulfadiazine. The incidence of symptoms ascribed to the drug varied between 0.2 per cent and 0.7 per cent. Approximately half of these reactors when retested had no drug symptoms and were replaced on the prophylactic program. The large majority of all reactions occurred in the second and third weeks of prophylaxis. The dosage had no apparent effect on the incidence of reactions. Likewise the institution of prophylaxis in groups who had been without sulfadiazine for a period of one to four weeks did not increase the incidence of drug reactions. A few individuals who had manifested sensitivity to sulfonamide and who subsequently contracted severe respiratory infections were treated with penicillin. The collected findings indicated that a small percentage of individuals have an idiosyncrasy to sulfonamide administered in therapeutic or prophylactic doses but that sulfadiazine prophylaxis per se does not sensitize.

Severe irreversible drug reactions: Dangerous untoward reactions occurred in .001 per cent of individuals receiving sulfadiazine prophylaxis. These were of two types and about equally divided between exfoliative dermatitis and granulocytopenia. With supportive treatment these disease processes appeared reversible. The administration of therapeutic doses of sulfonamide to one man with a sulfonamide rash and bronchitis was followed by an irreversible exfoliative dermatitis, stomatitis, pneumonia and death. This was the only exitus.

Development of drug-fastness by respiratory pathogens: Resistance of the streptococcus to sulfadiazine was apparently not initiated during this prophylactic program. The evidence for this is:

1. There was no increase in the prevalence of any serological type of hemolytic streptococcus in the groups on prophylaxis.
2. There was no increase in the proportion of hemolytic streptococci in the throat flora of individuals throughout the period of prophylaxis.
3. There was no increase in streptococcal morbidity throughout the period of prophylaxis.
4. There was no difficulty in obtaining a satisfactory therapeutic effect from sulfadiazine in individuals who contracted streptococcal infections while receiving prophylaxis.

In summary, the only liability incurred in this program was the development of a few severe drug reactions in those receiving prophylaxis. The gains from the program included prevention of disabilities, saving in loss of man-days and a reduction in the costs for care of the sick and for pensions. The size of these gains was proportional to the incidence of bacterial infections of the respiratory tract. Among recruits with a high incidence of infections, it was estimated that 343 man-days were saved per thousand per week from bacterial infections. Most of these man-days were saved through the prevention of streptococcal infections. Since these infections are prone to cause debilitating sequelae, their prevention obviously created enormous benefits to naval personnel.

Discussion: A number of observers have pointed out the effectiveness of a short course of sulfadiazine prophylaxis in checking outbreaks of meningococcal infections. This measure not only breaks the epidemic process but also eliminates the meningococcus from the throat flora of carriers. Because of this, a misconception has arisen in the handling of streptococcal outbreaks. Sulfadiazine administered for a few days, either in prophylactic or therapeutic doses, does not check a streptococcal outbreak and has little or no effect on the throat flora of individuals in the carrier state. This fact was demonstrated by a small naval activity experiencing an outbreak of scarlet fever. Sulfadiazine was given for three days in January with apparently good results; however, the outbreak recurred in February when another three-day period of prophylaxis was administered with little effect. All personnel were subsequently placed on a continuous prophylactic program of sulfadiazine, one gram daily, early in March. The streptococcal outbreak then subsided, and only two new cases of scarlet fever occurred in the following ten weeks. The ineffectiveness of short courses of sulfadiazine at this activity is shown in Figure 4. This experience illustrated the fact that a three-day course of prophylaxis, which will effectively check a meningococcal outbreak, is not adequate for preventing streptococcal infections. The presence of sulfadiazine on the surface of mucous membranes prevents implantation of the hemolytic streptococcus but does not modify the streptococcal flora already implanted.

The exact concentration of sulfadiazine in nasopharyngeal secretions required to prevent implantation of bacterial respiratory pathogens is still unknown. In the course of the present studies it was found that individuals receiving a daily dose of one gram of sulfadiazine had blood values ranging between 2.6 and 1.7 with a median of 2.2 mgm. per cent and that with a daily dose of 0.5 gram the blood values ranged between 1.8 and 0.8 with a median of 1.4 mgm. per cent. The findings of others have shown that the concentration of sulfadiazine in the secretions of the upper respiratory tract is about 60 per cent of blood level. The observations made in Camp 2, therefore, indicate that less than 1 mgm. per cent of sulfadiazine contained in these secretions is adequate to prevent the implantation of most bacterial respiratory tract pathogens.

In summary, prophylactic doses of sulfadiazine have been given continuously to about 250,000 naval trainees between December 1943 and April 1944. This preliminary report deals with observations on only 30,000 men at three camps.

These observations indicate that the continuous ingestion of one gram of sulfadiazine daily is adequate: (a) to check a well-advanced streptococcal epidemic, (b) to check a streptococcal outbreak at its onset, (c) to protect 85 per cent of susceptible recruits from the implantation of bacterial respiratory pathogens.

Limited observations further indicate that 0.5 gram, like 1.0 gram, of sulfadiazine administered daily for prophylaxis is also most effective against the meningococcus, highly effective against the hemolytic streptococcus, somewhat less effective against the pneumococcus and ineffective against the viruses of the respiratory tract.

The only untoward effect of mass sulfadiazine prophylaxis is the occurrence of evanescent rashes in about 0.4 per cent and dangerous constitutional disturbances in 0.001 per cent.

Mass sulfadiazine prophylaxis inhibits the implantation of bacterial pathogens in the nasopharynx and prevents the development of the disabling sequelae of respiratory tract infections.

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The above item describing the streptococcal control program of the Bureau of Medicine and Surgery is abbreviated from a paper which will be presented by Comdr. A. F. Coburn at the coming meeting of the American Medical Association. It is hoped that a summary of the entire program will be available for presentation in the Bumed News Letter in the near future.

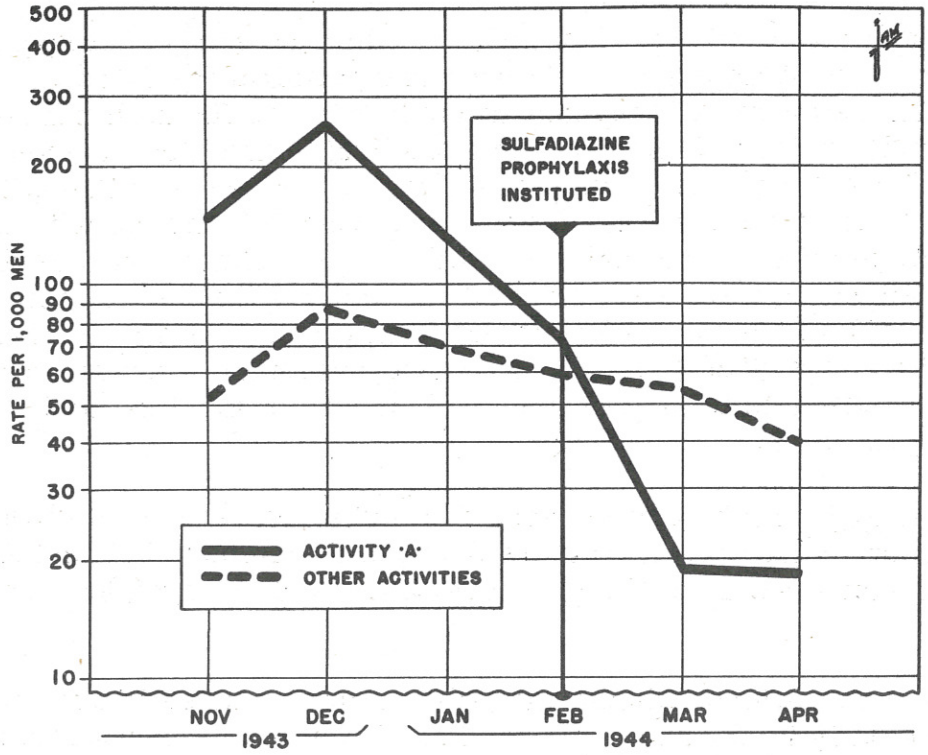

Fig. 1: A comparison of the monthly morbidity rates for respiratory tract infections at Activity A with those of other Naval Activities in the Chicago area.

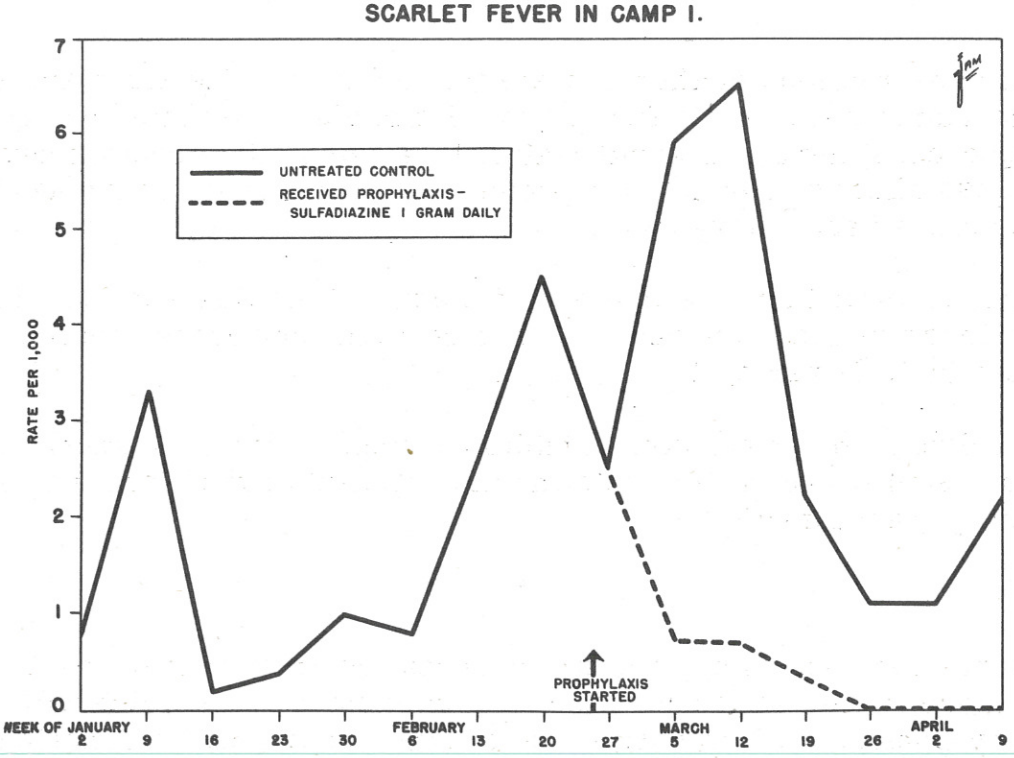

Fig. 2: The effectiveness of sulfadiazine prophylaxis as reflected by the incidence of scarlet fever in Camp 1 during the winter and spring months of 1944.

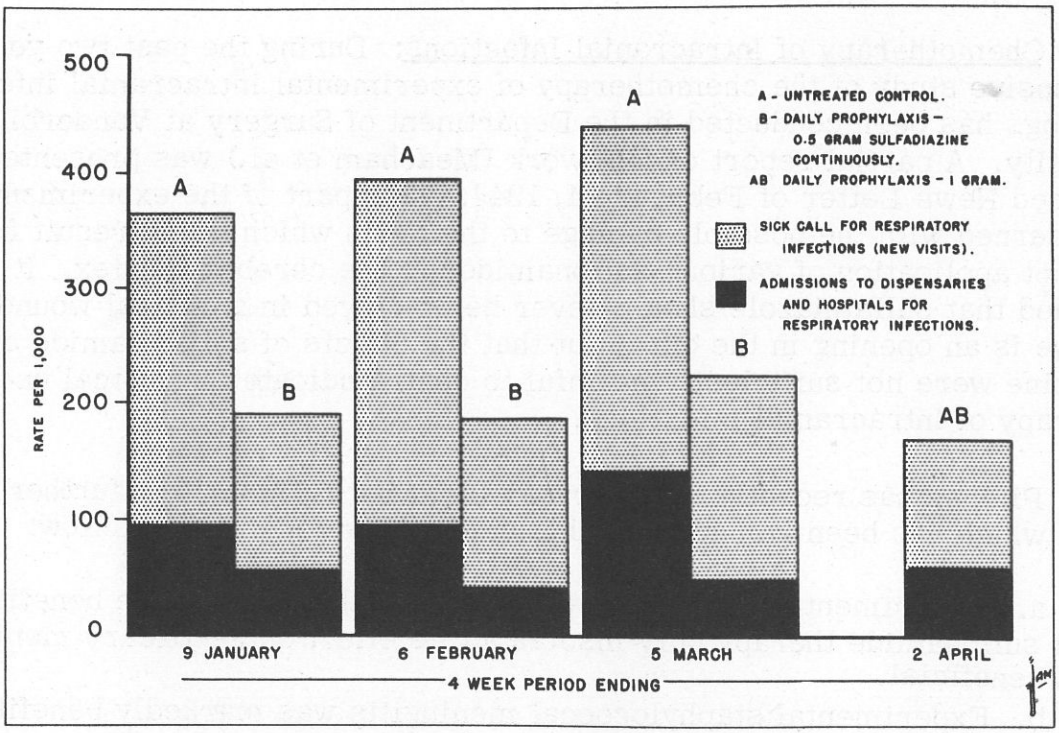

Fig. 3: The effectiveness of continuous sulfadiazine prophylaxis in preventing respiratory tract infections in Camp 2.

SCARLET FEVER AT A SMALL NAVAL ACTIVITY

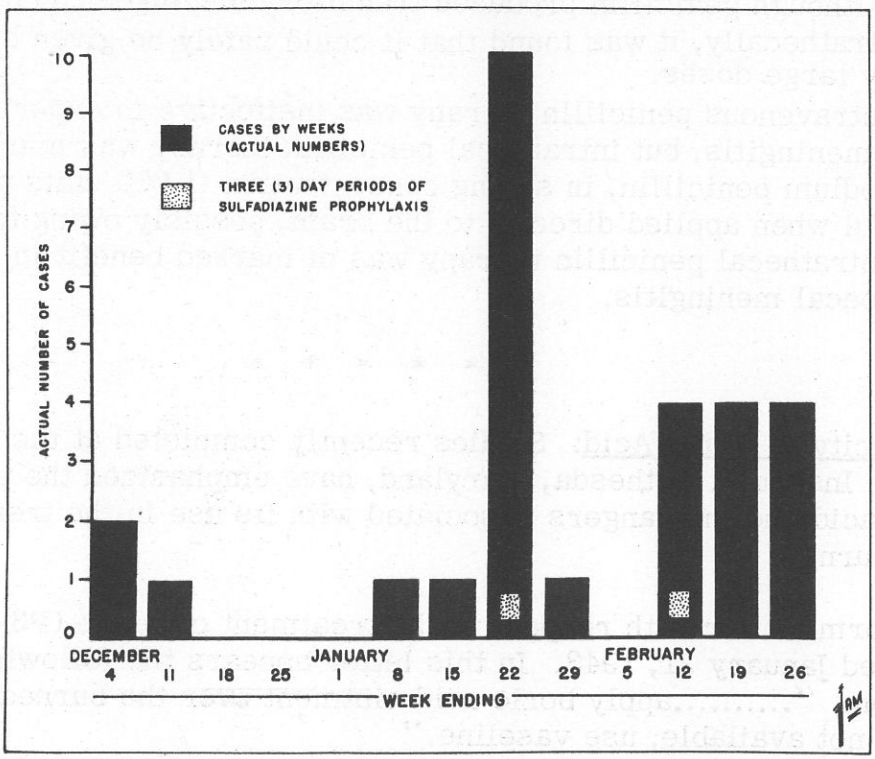

Fig. 4: The ineffectiveness of two short courses of sulfadiazine in checking an outbreak of scarlet fever at a small Naval Activity.

Chemotherapy of Intracranial Infections: During the past two years an extensive study of the chemotherapy of experimental intracranial infections in dogs has been conducted in the Department of Surgery at Vanderbilt University. A partial report of this work (Meacham et al.) was presented in the Bumed News Letter of February 4, 1944. This part of the experiments was concerned with the possible damage to the brain which might result from the direct application of various sulfonamides to the cerebral cortex. It was concluded that sulfathiazole should never be employed in a cranial wound in which there is an opening in the dura, but that the effects of sulfanilamide and sulfadiazine were not sufficiently harmful to contraindicate their local use in the therapy of intracranial infections.

Pilcher has recently summarized (Ann. Surg., Apr. '44.) further information which has been gained from this study. His conclusions follow:

a. Experimental cerebral staphylococcal abscesses were benefited by oral sulfonamide therapy only insofar as its effect on secondary meningitis was beneficial.

b. Experimental staphylococcal meningitis was markedly benefited by oral therapy with sulfadiazine, but not with sulfathiazole.

c. Open wounds contaminated with staphylococci were benefited by local application of sulfadiazine, but not of sulfathiazole.

d. Although penicillin produced transitory meningeal irritation when injected intrathecally, it was found that it could safely be given by that route in relatively large doses.

e. Intravenous penicillin therapy was ineffective in experimental staphylococcal meningitis, but intrathecal penicillin therapy was markedly beneficial.

f. Sodium penicillin, in strong concentration (1,000 units per c.c.), may be harmful when applied directly to the brain, possibly owing to its low pH.

g. Intrathecal penicillin therapy was of marked benefit in experimental pneumococcal meningitis.

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Toxicity of Boric Acid: Studies recently completed at the Naval Medical Research Institute, Bethesda, Maryland, have emphasized the potential toxicity of boric acid and the dangers associated with its use in the treatment of extensive burns.

A Form Letter with respect to the treatment of burns (P3-2/P3-1(024)) was issued January 21, 1943. In this letter appears the following recommendation: "……apply boric acid ointment over the burned surface, or if this is not available, use vaseline."

This advice was given to medical officers in response to an official recommendation of the Subcommittee on Burns of the National Research Council. However, at a combined meeting of the Subcommittees on Burns and on Surgical Infections of the National Research Council held July 17, 1943, it was recommended that boric acid be no longer used in the treatment of extensive burns and that petrolatum be considered the ointment of choice. This recommendation of these Subcommittees was reported in the Bumed News Letter of September 3, 1943.

The decision with regard to boric acid was based on the fact that the ointment base melts at approximately 120°F., a condition which may be encountered in tropical storage. Such melting causes certain physical changes in the ointment impairing its effectiveness when it is cooled to the usual consistency. At about this same time Cope suggested that too rapid absorption of boric acid might result in poisoning. He was led to this suggestion by the finding that certain victims of the Coconut Grove disaster treated locally with boric acid excreted large amounts of this substance in the urine.

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During the past year experiments have been carried on in the Naval Medical Research Institute to determine the degree of absorption of boric acid under various methods of application and to ascertain the degree of chronic and acute toxicity which might develop following the absorption of this substance. A summary of the results of these investigations follows:

1. Boric acid is absorbed in appreciable quantities from ointments applied to burned areas or to wounds involving loss or damage to large areas of skin.
2. When a 5 per cent boric acid solution is used to irrigate cavities, most of the boric acid is absorbed by the tissues.
3. While boric acid is not toxic when administered in a single large dose, repeated doses result in accumulation in the brain, liver, and body fat.
4. The liver and kidneys are only slightly affected histologically by chronic poisoning. The brain and spinal cord show neuronophagia and hyperchromatosis. Death probably results from the combined action of boron on the central nervous system and the peripheral capillaries.
5. As little as one-third of the median lethal dose, or treatment of a burn involving only 4 per cent of the surface area of the body with U.S.P. 10 per cent ointment, will produce pathological changes in the central nervous system.
6. When repeated daily doses as small as 200 mgm./kgm. are given subcutaneously, 12 to 14 days are required before urinary excretion reaches a plateau. This, together with the fact that boric acid can still be found in the brain of animals four days after discontinuation of a series of doses, indicates cumulative action.

7. The data do not provide any evidence of a depressant action of boric acid on the blood-forming organs.

8. A definite increase in urinary phosphorus excretion occurs after intravenous doses of boric acid.

9. The boron occurs in both the white matter and gray matter of all parts of the central nervous system and in the peripheral nerves. The spinal cord and gray matter of the cerebrum contain the highest amounts.

10. The boron found in the brain is not combined with phospholipids or cholesterol but is probably present in some simple combination with glycerol.

11. Polyhydroxyl organic compounds such as mannitol, glucose or glycerol are not antidotal to boric acid, but large intravenous doses of Locke's solution definitely counteract the toxicity.

It was concluded that boric acid, applied in the form either of an ointment or of a saturated solution to extensive wounds, is a cumulative poison. The weak antiseptic value of boric acid suggests that for most uses other more active and less potentially harmful therapeutic agents should be employed. (N.M.R.I. Research Project X-200, April 4, '44.)

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Nupercaine Much More Toxic Than Procaine: Fatalities have occurred as a result of the accidental substitution of nupercaine for procaine in regional anesthesia. Nupercaine is much more toxic than procaine. Nupercaine should not be used for infiltration anesthesia.

Every effort should be made both in the pharmacy and in the operating room to avoid accidental use of nupercaine where it was intended to employ procaine. Many possible safeguards suggest themselves, such as the use of distinctive bottles and labels as well as not storing the two substances together in the pharmacy.

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Salt Conservation in Acclimatized Individuals: Men transferred from temperate regions to a hot environment become physiologically acclimatized to a certain degree. Such acclimatization is favored by requiring them to perform at first small but gradually increasing amounts of work at the new temperature. It is favored also by maintaining them in proper water and sodium chloride balance. Men so acclimated are able to perform more work and exhibit more stable blood pressure and more stable behavior of the vasomotor apparatus in general than do unacclimated personnel.

There is no reason to believe that acclimatization results in any lessening of the requirements for water. Until recently it has been thought that

acclimatization had no favorable effect on the sodium chloride economy. However, Dill has shown that the sodium chloride concentration of sweat may fall from as much as 0.4 to as little as 0.2 per cent during acclimatization.

Results of some studies conducted at the University of Michigan Medical School and recently reported by Conn and Johnston suggest that in completely acclimatized individuals the sweat glands are capable of further protective reduction of the sodium chloride concentration of sweat.

This adaptation does not take place in unacclimated men, nor does it occur unless, through reduction of salt intake, a need arises for salt conservation.

In the experiments men performed muscular work equivalent to about 4600 calories a day at a temperature of 85°F. and a relative humidity of 85 per cent. All of the subjects were completely acclimatized. The average loss of water as sweat per day for each individual was 7 liters. After a short period of high salt intake, the sodium chloride of the diet was reduced to as low as 6 Gm. a day. This reduction was followed almost immediately by a virtually complete disappearance of chloride from the urine and a substantial decrease in the concentration of sodium chloride in the sweat. There was an initial loss of weight, presumably owing to the expected reduction in the body fluids. However, the weight soon resumed a constant level and the work-efficiency of the subjects was maintained satisfactorily.

In two subjects under these conditions the salt intake was reduced to 2.6 Gm. a day. This experiment has not been completed, but the results obtained so far suggest that sodium chloride balance cannot be achieved at this level of intake.

These results demonstrate the ability of the sweat glands of acclimatized men threatened with salt loss to reduce to very low levels the concentration of sodium chloride in the sweat. They do not suggest that any benefit is to be derived from lowering the salt intake of men working in the tropics to a point where this protective mechanism is called forth. However, it is probable that fully acclimatized men performing hard work under conditions of tropical heat are adequately protected against salt depletion when they eat an average diet containing 10 to 15 grams of NaCl, and that salt supplements are unnecessary and sometimes disadvantageous. The results indicate, further, that by means of this adaptive function of the sweat glands, fully acclimatized men are able to compensate for the sudden withdrawal of a large part of their usual salt intake, when such a situation is forced upon them.

(This work was reported by Dr. Conn at a meeting of the Subcommittee on Clinical Investigation of the National Research Council on May 5, 1944.)

Penicillin in Ophthalmology: Penicillin has been used at the U. S. Naval Hospital, Bethesda, Maryland, in many eye conditions. The results have been variable. The drug has been found valuable in eye diseases caused by the pneumococcus, the streptococcus hemolyticus, the staphylococcus, the gonococcus and the streptococcus viridans. Penicillin may be given parenterally or locally for eye conditions, or it may be administered by both methods simultaneously. It may be used locally as a solution in saline with a concentration of 250 units per c.c. Recently an ointment has been prepared containing 250 units per gram of aquaphor. To be effective when used locally, penicillin must be trapped at the site of infection for a period of from 6 to 8 hours. So far penicillin has appeared to have no value in the treatment of blepharitis and conjunctivitis, although it should be very valuable in the treatment of gonorrheal conjunctivitis. The severe ulcerative form of blepharitis might conceivably be treated by the injection of the drug into the lid. Penicillin has not been found to be effective in the treatment of corneal ulcers, probably owing to the impossibility of getting any prolonged local effect of the drug. One case of interstitial keratitis treated with penicillin showed remarkable improvement. A series of cases of iritis was treated with penicillin with disappointing results. Penicillin has proved strikingly effective in the treatment of orbital cellulitis and abscess.

As might be expected, in a condition of the eyes where the causative agent is known, and known to be susceptible to penicillin, the drug seems to give good results. While in such conditions as keratitis or uveitis where the etiology is obscure, treatment with penicillin cannot usually be expected to be effective. (A.E.T.)

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Black Widow Spider Bites: The Latrodectus mactans is a coal-black, shiny spider with small cephalothorax and large, smooth abdomen. On the ventral surface of the abdomen is a brilliant red area which often has the shape of an hourglass. The full-grown spider averages about 1 cm. in length, and its smooth black legs may arch over an area of 4 to 5 cm. It is often known as the "black widow" spider, the name apparently arising from the female's habit of killing and eating the male after copulation. The "black widow" is probably the only poisonous spider likely to be encountered in the United States. This spider and closely related species have a nearly world-wide distribution.

In the Southern and Western States bites by the female Latrodectus mactans are not uncommon. Because this spider frequents privies, the victims are not infrequently bitten on the penis or scrotum.

The victim experiences severe pain at the site of the bite. The painful area at first spreads locally, but later the toxin produces distant and

generalized neuromuscular effects. The local lesion produced by the bite is insignificant, only a small red spot which rapidly disappears. Following bites on the upper extremities the pain often spreads first to the chest, while pain from bites on the lower extremities or penis spreads to the abdomen and groin. In most cases there are such striking abdominal pain and rigidity that the condition may be difficult to differentiate from an acute surgical condition of the abdomen. Additional symptoms may be muscle spasms and paroxysmal contractions, profuse cold sweats, restlessness, anxiety, difficulty in breathing, nausea and vomiting, constipation, cyanosis, delirium, prostration, shock, speech disturbances and acute urinary retention. While in very rare instances death has occurred following a bite by the black widow, recovery is the rule.

The poison is a non-hemolytic neurotoxin. Animals bitten experimentally and dying after 48 hours show areas of necrosis and hemorrhages in the liver and rarely in the kidney, spleen and adrenals. Following recovery from the bite, complete immunity is apparently present. A subsequent bite produces no systemic reaction, but a more marked local reaction with slough (Arthus Phenomenon). Immune serum (antitoxin) protects the animal only when given immediately after the bite. Given later, it does not seem to alter the course of the reaction.

Therapy is symptomatic, morphine in large doses and barbiturates being useful. (Hall, Nav. M. Bull., Oct. '32.)

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Ether Intoxication in Powder Storage and Handling Rooms of Naval Vessels: Ether occurs in considerable concentration in powder as stored for use in the magazines of combatant vessels. It recently caused a number of casualties during battle in hot climates.

In order to avoid the hazards of explosion of powder through ignition by flame carried through ventilating ducts, it has been mandatory to shut off all ventilation of powder storage and handling rooms during action. The opening of powder cans results in high concentrations of ether in these spaces, particularly during engagements in the tropics. In one engagement, near the equator in the South Pacific, sixteen men in one vessel were incapacitated from ether intoxication while a lesser number of casualties occurred in other vessels.

Vessels which took advantage of the facilities provided for "blowing out" these spaces by opening up the ventilating system for short periods during engagements experienced no such casualties. Ether intoxication incapacitates only temporarily unless of sufficient degree to be fatal. (F.C.H. and E.W.B.)

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Manzanillo Dermatitis: Snow and Harley have recently described the dermatitis caused by the Manzanillo (beach apple) tree. This tree is found along the beaches throughout the Caribbean area and resembles the North American crabapple. Although the natives are well aware of its toxic properties, this tree has harrassed newcomers since the time of the early Spanish explorers. It (Hippomane mancinella L., family Euphorbiaceae) is an attractive gray-barked, round-topped tree found along the Caribbean and Pacific coasts of Central America and on the coasts of the West Indies, Florida and the northern parts of South America. In Jamaica and Trinidad it is known as the "manchineel." The trees grow close to the ground, forming thickets, but they may reach a height of 20 to 30 feet. The flowers are green and arranged in small stiff spikes. The fruit is a small green apple, about 1-1/2 inches in diameter, which becomes reddish-yellow when ripe. The apple has a pungent disagreeable taste, which usually results in its being spat out. The leaves are dark green and resemble those of the cherry tree. When the branches are cut or bruised, a white sap exudes, which is milky and sticky.

The clinical appearance of the dermatitis is similar to that produced by other toxic plants, such as Rhus toxicodendron. Two outstanding features are the rapidity of onset of symptoms after contact and the severity of the ocular reactions. Within an hour after getting the sap on the skin the patients note erythema and burning, and vesiculation soon follows. When small droplets of the sap get into the eyes, burning and lacrimation occur almost immediately, and within an hour the patients are unable to open the eyes because of edema of the lids and spasm of the orbicularis oculi muscles. Four patients presented a severe keratoconjunctivitis with temporary "blindness" produced by blepharospasm and by denudation of the corneal epithelium.

Treatment of the dermatitis consists of bland wet dressings and soothing applications; the ocular lesions respond to instillations of anesthetics for relief of the pain and irrigations with isotonic solution of sodium chloride. Patch tests made with various parts of the tree indicate that the sap is the chief irritating substance and that it is a primary cutaneous irritant, having a pH of approximately 5. A toxic portion was found to be soluble in ether and capable of producing severe eczematoid reactions. To remove the sap and thus prevent the cutaneous reaction, tests showed that ether, soap and water, and sea water were effective in the order named.

Recommended effective prophylactic measures are: (1) prompt immersion in sea water, preferably with the eyes open, and (2) thorough washing of the entire body with soap and water. (Arch. Dermat. & Syph., Apr. '44.)

* * * * * *

Ear Defenders: In an item on Ear Defenders which appeared in the October 1, 1943, number of the Bumed News Letter, it was stated that the

V-29 (R) N.D.R.C. model, developed under the direction of the National Defense Research Council, had proved to be the most satisfactory. Without seriously interfering with the auditory reception of the spoken word, it provides a high degree of protection to the ear from extremely high noise levels.

Further improvements have been made with respect to the V-29 defender, and it now goes under the name of the V-51 (R) N.D.R.C. Ear Warden.

It was stated in the same item that "during the period that the V-29 N.D.R.C. Ear Defenders are being placed in production, the Mine Safety Appliance Co. Ear Defenders may be procured." These are known as the M.S.A. Ear Defenders.

From the onset the course of the Ear Wardens has been beset by troubles in procurement and production, and even the M.S.A. Ear Defenders have not been readily available.

We are relieved to be able to state: (1) that 100,000 Mine Safety Appliance Type Ear Defenders are now available for distribution; and (2) that distribution of the V-51 Ear Wardens will begin in July and eventually about 1,000,000 will be procured. These ear defenders are not issued by the Naval Medical Supply Depots, but are distributed by the Bureau under which the requesting activity is operating. (E.W.B.)

* * * * * *

Patients Not Ready for Dental Prosthetic Treatment: As dental prosthetic treatment continues to expand in the Navy, it becomes urgently necessary that adequate attention be directed toward diagnosis and primary treatment. The Manual of the Medical Department, paragraph 240 (e) states: "The mouth of the patient shall be placed in condition to receive the appliance needed, prior to transfer, and every effort shall be made to reduce to the minimum the time during which patients must be separated from duty." The Manual also states that wherever possible an appointment will be made with the prosthetic activity for the patient or patients before they are presented for treatment.

Some concern has been evidenced at dental prosthetic activities because of the number of cases referred for prosthesis in which mouths are unprepared for the recommended replacements.

The most common failures in diagnosis and preliminary procedures are as follows:

1. Lack of treatment of diseases of the gingival and periodontal tissues.
2. Failure to instruct patients in matters of oral hygiene.
3. Failure to recognize conditions of insufficient bony support.

4. Lack of consideration of occlusion and malposed teeth.
5. Failure to institute surgical treatment when necessary in cases of:
   (a) Unfavorable soft ridge areas.
   (b) Alveolar undercuts.
   (c) Interfering tuberosities.
   (d) Indicated extractions.
   (e) Paradentosis.

Intelligent application of correct treatment planning principles will result in a more efficient prosthetic service and the conservation of valuable time and effort. (R.S.D.)

* * * * * *

Optical Repair Units: In the Bumed News Letter of August 6, 1943, detailed mention was made of the assembly and material for a number of Optical Repair Units.

The mission of these units is (1) to provide emergency spectacle replacement and repair service without charge to naval personnel on duty at places not accessible to civilian facilities; and (2) to provide, without charge, urgently needed corrective spectacles to naval personnel under like circumstances. Both base and mobile units were formed.

The following excerpts are from a report by Lt. John D. Gwillim H-V(S) on the operation of those units assigned to the South Pacific Area. The full report was published in Medical Supply News Letter No. 4-44.

"By the time the Units were established, heavy demands for replacements had accumulated owing to very poor service out of New Zealand. Prior to the arrival of Navy Optical Service Units, personnel requiring new glasses or replacements had been sending mail orders to Mobile Hospital #4, where they were turned over to civilian optical houses; the latter were unable to maintain adequate stocks of optical material, all of which had to be imported, and deliveries were most uncertain. As orders accumulated in civilian optical houses, confusion increased. As a result, prescriptions were frequently found to be incorrectly filled when received by the patients who, in most cases, had waited three or four months for delivery. It was for this reason that the Navy Units were heartily welcomed in the South Pacific Area."

The five units completed 6,174 optical repairs or replacements in the course of four months.

With respect to the sources of the requests for services received by the units, 11.4 per cent came from the staffs and patients at the hospitals, 31.3 per

cent came from the personnel of visiting ships, and 49.2 per cent came from personnel from other shore establishments. Air-mail facilities were used effectively in this area.

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Epidemiology of Diseases of Military Importance in the Netherlands Indies: A report on the "Epidemiology of Diseases of Military Importance in the Netherlands Indies" has been prepared by the Bureau of Medicine and Surgery and distributed to all medical officers in the Pacific areas. A limited supply is still available upon request from the Bureau for those who are interested but were not included in the original distribution. (D.F.S.)

* * * * * *

Informational Bulletins: A limited number of each of the bulletins in the following list has been procured by the Bureau of Medicine and Surgery and will be available for distribution to medical officers on request to the Bureau. They were prepared at the Arctic, Desert and Tropic Information Center, Eglin Field, Florida.

No. 5. Living off the Southwest Pacific Tropics.
No. 6. Living off the Arctic.
No. 7. Care of Personnel in the Desert.
No. 8. Care of Personnel in the Arctic. (D.F.S.)

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Diving Manual Revised: A revision of The Diving Manual - the first since 1924 - has been completed and distributed by the Bureau of Ships to the forces afloat. Requests for additional copies should be addressed to the Chief of the Bureau of Ships. (E.W.B.)

* * * * * *

Public Health Foreign Report:

Disease	Place	Date	Number of Cases
Dengue Fever	Honolulu, T.H., U.S.A.	Mar. 1-15, '44	12
		Mar.16-31, '44	10
Plague	Br. East Africa, Uganda	Feb. 26-Mar. 4, '44	1 (fatal)
	Egypt, Ismailiya Dist.	Apr. 1, '44	38 (21 fatal)
	Honolulu, T.H., U.S.A.	Mar.10, '44	1 (fatal)

Public Health Foreign Report (Cont.):

Disease	Place	Date	Number of Cases
Plague	Indochina	Feb. 1-Mar. 16, '44	13
	Morocco, French	February '44	5
Smallpox	Algeria	Feb. 1-29, '44	27
	Br. East Africa,	Jan. 22-29, '44	45
	Tanganyika	Jan. 29-Feb. 5, '44	60
		Feb. 5-12, '44	35
	Uganda	Feb. 5-12, '44	129
		Feb. 12-19, '44	83
		Feb. 19-26, '44	101
	Egypt, Alexandria	Feb. 12-19, '44	65 (9 fatal)
		Feb. 19-26, '44	70 (6 fatal)
	Port Said	Feb. 26-Mar. 4, '44	140 (9 fatal)
		Mar. 4-11, '44	76 (5 fatal)
	French Guinea	Jan. 11-Feb. 10, '44	130
	Gambia	Mar. 4-11, '44	13
	Gr.Brit., London, Eng.	Mar. 11-18, '44	4
	India, Bombay	Feb. 19-26, '44	282 (81 fatal)
		Feb. 26-Mar. 4, '44	289 (102 fatal)
		Mar. 4-11, '44	280 (90 fatal)
	Calcutta	Feb. 26-Mar. 4, '44	278 (224 fatal)
		Mar. 4-11, '44	240 (fatal)
		Mar. 11-18, '44	294 (fatal)
	Indochina	Feb. 1-10, '44	95
		Feb. 11-29, '44	388
	Ivory Coast	Feb. 11-20, '44	57 (13 fatal)
	Mexico	January '44	236
		February '44	429 (100 fatal)
	Morocco, French	February '44	138
	Nigeria	Feb. 12-19, '44	148 (36 fatal)
		Feb. 19-26, '44	236 (36 fatal)
	Sudan, French	Feb. 11-20, '44	95 (7 fatal)
	Turkey	January '44	1,661
Typhus Fever	Algeria	Feb. 21-29, '44	15
	Bulgaria	Jan. 20-Feb. 16, '44	213
	Chile	Jan. 2-29, '44	44 (7 fatal)
	Ecuador	February '44	23 (2 fatal)
	Guatemala	February '44	162 (41 fatal)
	Hungary	Feb. 26-Mar. 4, '44	66
		Mar. 4-11, '44	75

Public Health Foreign Report (Cont.):

Disease	Place	Date	Number of Cases
Typhus Fever	Mexico	January '44	185
		February '44	247 (31 fatal)
	Morocco, French	February '44	303
	Rumania	Mar. 1-15, '44	1,068
		Mar.16-23, '44	443
		Mar. 24-31, '44	138
	Slovakia	Feb. 1-12, '44	33
		Feb. 19-26, '44	14
		Mar. 4-18, '44	44
	Spain	Feb. 26-Mar. 4, '44	21
	Turkey	January '44	190
	Union of So. Africa, Cape Province	Jan. 7-Feb. 19, '44	2,500
		Feb. 19-26, '44	429
	Yugoslavia	Jan. 8-31, '44	273
Yellow Fever	Belgian Congo, Babeyru	Feb. 17, '44	1 (fatal)
	Brazil, Seabra	Jan. 14, '44	1 (fatal)

(Pub. Health Rep., Apr. 7, 14, 21 & 28, '44.)

* * * * * *

To: All Ships and Stations. BUMED-R1-OIM
P2-5/SS(123)

Subj: Paragraph 1535, Physical Examination of Officers and Enlisted Men for Submarine Service, Manual of the Medical Department. 21 Apr 1944

1. Certain modifications and additions to the instructions for physical qualifications for submarine duty, paragraph 1535, Manual of the Medical Department, have been approved by the Secretary of the Navy. The complete paragraph 1535 has been rewritten with the modifications included in order to clarify present misunderstandings on the subject of physical qualifications for submarine duty. Revised paragraph to read as follows:

(a) Preliminary Examination. - In view of the special conditions characteristic of the submarine service all officers and enlisted men who are candidates for submarine training shall conform to the standards herein set forth. Particular care must be exercised in the preliminary examination on ships and at shore stations in order that candidates may not be unnecessarily rejected as a result of reexamination at the Submarine School, New London, Conn., thus avoiding needless cost of transportation, loss of services, and incomplete quota of classes.

(b) Standards. - Are those for general service with especial attention to the following conditions:

(1) Because of the nature of the duties and responsibilities of each officer and man in a submarine, the psychological fitness of applicants for submarine training should be carefully appraised. The man should have arrived at his decision to volunteer for submarine training after mature deliberation and should be motivated by a real desire for this duty. Emotional maturity and stability, dependability, and at least normal intelligence are necessary. Psychiatric conditions or personality traits which might militate against satisfactory adjustment under conditions aboard this type of ship should disqualify.

(2) Vision. - In view of the requirements of operation of the periscope, the vision of officers shall be a minimum of 20/20 in each eye; of enlisted men of the seamen's branch also 20/20 in each eye. All letters on the 20-foot line shall be read within a period of 4 seconds. For all other candidates the minimum vision shall be 15/20. No recommendation for waiver below these standards shall be made unless there is previous submarine experience.

(3) Color vision. - All candidates shall be examined using the Pseudo-Isochromatic Plates issued by the American Optical Company and shall have normal color perception.

(4) Nose and throat. - The nares, nasopharynx, and pharynx shall be carefully examined by reflected light. Obstruction to breathing such as marked deviation of the nasal septum, or any chronic inflammatory condition such as infected hypertrophied tonsils, shall be sufficient to reject until such defects are remedied.

(5) Ears. - Acute or chronic disease of the middle or internal ear or ruptured eardrums shall disqualify. The acuity of hearing in each ear shall be 15/15 by the whispered voice, and 20/20 by coin click. A thorough otoscopic examination of the auditory canal and tympanic membranes shall be made (pars. 1434, 1562).

(6) Teeth. - A complete dental examination shall be conducted by a dental officer. Definite oral disease and generally unserviceable teeth shall be causes for rejection. Teeth replaced by satisfactory bridges and dentures are not to be considered missing. Applicants with moderate overbite, underbite, or extensive restorations and replacements by bridges or dentures may be accepted since these do not interfere with effective gripping of the mouthpiece of the submarine escape appliances.

(7) Respiratory system. - Particular effort shall be made to detect latent tuberculosis or other chronic disease of the lungs.

(8) Cardiovascular system. - A systolic blood pressure established on repeated examination as exceeding 145 mm. shall disqualify. The diastolic pressure should be roughly two-thirds of the systolic. Persistent tachycardia, marked arrhythmia except of the sinus type, or any other disturbance of the heart or vascular system shall exclude.

(9) Gastro-intestinal system. - Candidates with a definite tendency to any digestive disorder such as colitis associated with obstinate constipation or diarrhea should be excluded.

(10) Venereal diseases. - A definitely established history of syphilis is sufficient to exclude. No candidate with any form of venereal disease at the time of the examination shall be accepted (par. 1281).

(11) Offensive breath, if persistent, and abnormally excessive or offensive perspiration are sufficient to exclude.

(12) Disease of the skin. - Any definitely chronic skin disease shall be disqualifying. Mild acne is not disqualifying.

(13) Obesity. - Candidates presenting a variation in weight of more than 18 percent above that prescribed in relation to height in the table contained in

paragraph 1442 of this manual shall be excluded, unless this overweight is mainly due to muscular and bony tissue.

(c) Division commanders of submarines, in consideration of the fact that their duties do not involve the actual operating of these vessels, will be excepted from these special standards. These officers, however, shall be examined, and shall conform to the standards of the general service commensurate with their rank and age.

(d) Special Examination at the Submarine School, New London, Conn. -

(1) All officers and men on arrival at the Submarine School shall again be given a complete physical examination. This is intended to supplement the examination carried out by the medical officer of the ship or station and not to replace it. The following special examination shall be conducted:

(2) All candidates shall be tested as to their ability effectively to clear the ears and otherwise to withstand an air pressure of 50 pounds to the square inch in a recompression chamber. This requirement must be satisfied in order that the personnel shall be qualified for training with the submarine escape appliance. It should be remembered, however, that there may be temporary difficulty due to acute congestion of the eustachian tube incident to coryza or pharyngitis.

(3) All officers and enlisted men of such ratings as may be assigned to listening duties shall be tested by the audiometer. The only permissible variation from the normal will be in the wave lengths of 128 c and 4096 c double frequencies.

2. In subparagraph (b) (1), emphasis has been placed on the necessity for the medical examiner to make a careful appraisal of the psychological fitness of the candidate for duty aboard submarines.

3. New pages containing revised paragraph 1535 for insertion in the Manual of the Medical Department will be distributed at a later date.

--BuMed. L. Sheldon, Jr.

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To: All Ships and Stations. BUMED-Y-RBG
A2-2/EN10(113-38)

Subj: Par. 2405 (b), Manual of the Medical Department, U. S. Navy, 1938. 14 May 1944

Ref: (a) BuMed ltr P3-1/P3-2(023) dated 14 May 1944.

1. Instructions for the preparation of Form F Cards (Individual Statistical Report of Patients) are hereby modified to implement further the uniform system of contact reporting established by Ref. (a).

2. To Paragraph 2405 (b), Chapter 15, Manual of the Medical Department of the Navy, "Line 12 -- Remarks" add:

> In addition, there shall be entered the serial number of each NavMed 171 (Venereal Disease Contact Report) submitted for each original admission and E.P.T.E.
>
> --BuMed. Ross T. McIntire.

* * * * * *

To: All Ships and Stations. BUMED-Y-RBG
P3-1/P3-2(023)

Subj: Venereal Disease Contact Reporting; Form and Procedure for. 14 May 1944

Refs: (a) BuMed form ltr P3-2/ET12(021) C-LEH, 30 July 1940.
(b) BuMed ltr A2-2/EN10(113-38) dated 14 May 1944.

Encl: 1. (HW) One sample unit of NavMed 171.

1. Reporting of contacts of venereal disease patients to local and State health authorities has proved one of the most effective means of reducing venereal disease in the Navy by making it possible to locate and place sources of infection under treatment.

2. To implement the policy enunciated in Ref. (a), Encl. 1 is established as the standard form and procedure for reporting contacts of venereal disease patients. As of 1 July 1944 NavMed 171 replaces all existing forms and procedures for contact tracing.

3. Ref. (b) modifies instructions for preparing Form F Cards to the extent that in addition to stating the probable place of exposure on line 12, the serial number of every NavMed 171 prepared for each case is also to be entered.

FORM NAVMED. 171

MEDICAL DEPARTMENT, U. S. NAVY
Venereal Disease Contact Report

Copy A

SERIAL No. 000 000

DATE of REPORT _____

For: LOCAL *(investigating)* HEALTH DEPARTMENT
of city or county in which exposure occurred

REPORTING STATION _____ NAVAL DISTRICT NUMBER [ ]

(city or county) (state)

PLACE of EXPOSURE _____

IF SHIP (check) [ ] — BUT DO NOT FILL IN ABOVE. SEE THIS SPACE ON COPY C.

Date of exposure _____

A MEMBER of . . . . The NAVY [ ] (color) (age) (sex) (disease — stage)
MARINE CORPS [ ] ____ ____ ____ Under treatment for _____

and whose symptoms began (date) _____ gives the following information:
(NAME and/or NICKNAME)

ALLEGED CONTACT (ADDRESS: room or apartment number — number and street — city or county — state) (phone no.)

Race _____ Age _____ Build (tall) [ ] (short) [ ] (average) [ ] (thin) [ ] (fat) [ ] (medium) [ ] Hair (light) [ ] (dark) [ ] (red) [ ] Other identification (marks, scars, complexion, etc.)

Occupation _____ Employment: Type & address _____

Type of contact (pick-up, no fee) [ ] (friend) [ ] (streetwalker) [ ] (hostess, etc.) [ ] (prostitute) [ ] (other) _____

PLACE of ENCOUNTER (tavern, bar, etc.) [ ] (street) [ ] (hotel) [ ] (home, apt.) [ ] (bus or RR station) [ ] (dance hall) [ ] (park) [ ] (taxi) [ ] (other) _____

Address _____ Solicitation by contact? (yes) [ ] (no) [ ]

Procured by (own effort) [ ] (pimp) [ ] (cab driver) [ ] (bell hop) [ ] (waiter) [ ] (other) _____

Name, description, address of procurer _____

PLACE of EXPOSURE (hotel) [ ] (house of assignation) [ ] (taxi) [ ] (auto) [ ] (park) [ ] (tourist camp) [ ] (brothel) [ ] (street) [ ] (other) _____

Address _____

FEE PAID $_____ Paid to (contact) [ ] (procurer) [ ] (other) _____

Estimated amount spent on contact for food, drinks, room, etc. (not including fee) $_____.

PROPHYLAXIS (none) [ ] (condom) [ ] (station) [ ] (navy tube) [ ] (other — specify type, brand, etc.) _____

REMARKS _____

Investigating health department: *Please report the results of your contact investigation on the reverse side of the ACTION-RETURN copy B of this form.*

Signed _____

_____ MC ____ USN ____

WAS THIS THE ONLY POSSIBLE CONTACT DURING THE PATIENT'S PERIOD OF INFECTIOUSNESS?

Report *each* contact on a *separate* form. Make at least one report for each case.

INSTRUCTIONS FOR REPORTING NAVY MEDICAL OFFICER

1. Tear sheets off in units of 5 (copies A, B, C, D, E). Be sure each of the five sheets carries the same printed serial number. Use typewriter. If a form is mutilated, destroy and use a new set. Never change the serial number.
2. Give all possible information, but submit reports even if incomplete. Make at least one report for each original admission and E.P.T.E. Submit a separate report for each contact. Enter on the Form F Card (remarks) of each case the serial number of each contact report and the place(s) of exposure.
3. If the ship or station reporting is within the geographic boundaries of a Naval District or River Command, all report copies except your file copy E are to be sent to that D. M. O. or S. M. O. . . .
   (a) — *Unless the place of exposure is nearby and you know the exact health department to which it should be sent for prompt and effective action. If so, forward copies A and B to the investigating health department; copy C to the D. M. O. or S. M. O.; copy D to state health department.*
   (b) — *Unless the D. M. O. or S. M. O. of the area in which you are located has given other orders.*
4. If the ship or station reporting is *not* within the boundaries of a Naval District or River Command, retain your file copy E and. . .
   (a) — *If the exposure took place in a District or River Command, forward copies A, B, C, D to that D. M. O. or S. M. O.*
   (b) — *If the exposure did not take place in a District or River Command, forward copies A, B, C, D to the Bureau of Medicine and Surgery, unless the appropriate Fleet or independent command Senior Medical Officer has given other orders.*
5. Familial contacts of Naval patients, and reports naming as contacts any members of the armed services, will *not* be reported to civilian health authorities. *Handle in accordance with existing instructions of the Bureau of Medicine and Surgery.*

FORWARD EACH CONTACT REPORT FOR ACTION AT THE EARLIEST PRACTICABLE MOMENT.

RESULT OF VENEREAL DISEASE CONTACT INVESTIGATION BY HEALTH DEPARTMENT*

From _____

To: REPORTING SHIP OR STATION, U. S. NAVY *
via (1) State health department; (2) District Medical Officer of Naval District in which the state is located.

Data furnished insufficient to begin investigation [ ]

The alleged contact described on reverse was:

Infected with _____

Under treatment: Prior to this investigation [ ] As a result of this investigation [ ]

Examined and found not infected [ ]

Found but not examined [ ] Reason _____ (insufficient data)

Not found [ ] Reason [ ] (moved) [ ] (other) _____

NOTE: *If no results have been obtained within six weeks from date of report (see other side, top left corner), and no further action is anticipated, please sign and return report.*

Remarks _____

DATE RETURNED _____ SIGNED _____

Title _____ M. D.

* SPECIAL NOTE — Copy B is the *ACTION and RETURN* copy. Local (investigating) health departments are requested to forward a report of their investigation on copy B via their state health department. If desired, investigation report data may be transcribed by the state to its file copy D. The state health department is requested to then forward copy B to the District Medical Officer of the Naval District (or the Senior Medical Officer of the River Command) in which the state is located.

Reproduction (half-size) of front and reverse of page one of Form NavMed 171. Each form consists of a set of five (5) colored sheets with carbon paper interleaves. Forms are issued in tablets of 25 sets.

4. For the specific purposes of this system, all activities located within the geographic boundaries of a Naval District or River Command will be considered as coming under the jurisdiction of that DMO or SMO.

5. The DMO of each Naval District and the SMO of each River Command shall distribute initial supplies of NavMed 171 to all activities within their areas, together with such supplementary instructions as may be necessary. Ships and outlying Stations will be initially supplied by BuMed. The FMO of each Fleet and the SMO of independent commands located outside of Naval District or River Command boundaries shall separately issue any necessary supplementary instructions.

6. Future replacement supplies of NavMed 171 may be requisitioned from the U. S. Medical Supply Depot, Brooklyn, N. Y. --BuMed. Ross T. McIntire.

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To: All Ships and Stations.

BUMED-Y-AFR
P2-3/P3-1(093)
PERS-101
MARCORPS 1515-110
21 Apr 1944

Subj: Limited-Duty Personnel - Malaria and Filariasis.

Refs: (a) Joint ltr BuPers-BuMed, Pers-66-JMS, P2-5(362), of 28 Oct 1942; N.D. Bul. Cum. Ed. 1943, p. 1162.
(b) Joint ltr BuMed- BuPers, P2-3/P3-1(104), of 25 May 1943; N. D. Bul. Cum. Ed. 1943, p. 1166.

Encl: (A) Letter of Instruction No. 255, from Comdt. U.S.M.C., of 14 Nov. 1942.

1. Attention is invited to reference (a) and enclosure (A), which establish the policy regarding disposition of enlisted men of the Navy and Marine Corps disabled in the line of duty. Clarification and modification of this policy, in the light of present knowledge, appears desirable in the case of men suffering with malaria and filariasis.

2. An increasing number of personnel infected with malaria and filariasis are being placed in a limited duty status without a definite understanding of what disposition can be made of these men whose disability is of such a nature as not to interfere with their performance of useful duty.

(a) Filariasis

(1) Attention is invited to reference (b), which establishes the policy in regard to the administrative control of personnel infected with filariasis, and

especially to paragraph 3, subparagraphs (b) and (d), which state that the movement of patients infected with filariasis shall not be restricted, except during the acute phases when hospitalization is required, and paragraph 3, subparagraph (c), which states they shall not be returned to an endemic area.

(2) For administrative purposes, it can be considered that the following areas are endemic for filariasis:

a. South and Southwest Pacific Theatres:
   All islands except New Zealand, including those of the East Indies.
b. Australia:
   Northern and northeastern coast to 32° South latitude.
c. Asia:
   1. Southern Japan
   2. Korea
   3. Formosa
   4. Philippines
   5. Coast of China
   6. Malay Peninsula
   7. Coast of India
   8. Coast of Arabia
d. Africa:
   1. Mediterranean Coast
   2. All of Central Africa
   3. Madagascar
e. South and Central America and Caribbean areas:
   1. North and East Coast of South America to 12° South latitude.
   2. All of Central America and Southern Mexico to 20° North latitude.
   3. All islands of the Caribbean area.

(3) Although there is a possibility that certain isolated areas within these general zones may be free of filariasis, and in others the incidence so low among the native population as to render transmission unlikely, in the light of present knowledge, it would appear ill-advised to send or return any military personnel known to have acquired filariasis to these general zones.

(4) Since present knowledge is inadequate to state with certainty the interval of time necessary to insure permanent recovery, it is the policy that all men returning to this country with filariasis, or those already present in a limited duty or hospital status, be examined every 6 months by the local medical officer to determine their fitness for general duty. Evidence of existing disabling infection should disqualify a man for full duty. Personnel found fit for full duty may be permitted to serve in any area except those specified above. This exception should be interpreted as prohibiting assignment to shore duty or to duty with shore-based craft in these endemic areas, but does not prohibit the

assignment of men to duty aboard battleships, heavy cruisers, or aircraft carriers operating in these waters.

(5) Officers and men who have acquired filariasis within the naval service should not be separated from the Navy by medical discharge until after a prolonged period of trial at return to limited duty. The Navy is better equipped to care for these men than any other agency, and it is felt that a change to civilian status would be potentially detrimental.

(b) Malaria

(1) It is the policy not to restrict the assignment of personnel who have acquired malaria. Therefore, in those cases where the individual is otherwise fit for duty, there are no restrictions as to the area, either in the United States or overseas, in which he can serve. The disposition of cases of malaria reporting to a naval activity for treatment of an acute relapse, or on return from convalescent leave, must remain at the discretion of the unit medical officer. At present we are without means by which we can be assured of a cure or a degree of immunity which will prevent future breakdown, and we must rely upon a man's history and physical condition more than anything else in determining whether or not he is to remain under continued observation or to return to full duty without limitations.

(2) There are several factors which a medical officer must take into consideration in making his final decision. Insofar as possible, a man who has been returned to the United States with a history of malaria should remain in the United States for at least 6 months before returning to a combat zone. After this period there are certain conditions which contraindicate assignment to combat duty. Personnel should not leave the United States with a combat unit who:

a. Have a history of frequent and repeated relapses during the previous 6 months (indicative of a poor "Host-parasite" relationship).
b. Have relapsed with clinical symptoms within 30 days prior to the date of departure.
c. Repeatedly show a positive blood smear on thick film examination although asymptomatic.
d. Have an enlarged spleen.
e. Have anemia.
f. Show cachexia.
g. Are in general poor condition.

(3) Obviously there are going to be border-line cases, and there are going to be keymen in the organization whose loss would be a serious handicap. Under such conditions, the desirability of having these individuals along must be weighed against the likelihood of their becoming malaria casualties at a later date.

(4) Our forces are now so seeded that it would be practically impossible to form an outfit completely free of malaria carriers. However, by elimination on the basis outlined, the number can be reduced to a minimum.

--BuMed. L. Sheldon, Jr.

--BuPers. L. E. Denfeld. --MarCorps. A. A. Vandegrift.

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Enclosure (A)

HEADQUARTERS U. S. MARINE CORPS
WASHINGTON

1535-200
AQ311-rwg
14 Nov 1942

LETTER OF INSTRUCTION NO. 255

From: The Commandant, U. S. Marine Corps.
The Chief of the Bureau of Medicine and Surgery.

To: All Commanding Officers, Marine Corps, and All Naval Hospitals within the United States.

Subj: Disposition of Enlisted Men of the Marine Corps Disabled in the Line of Duty.

Ref: (a) C.M.C. ltr of Inst. 230, dated 14 Oct 1942.

1. Reference (a) is revoked.

2. So long as the provisions of Public Law 337 (77th Congress) (55 Stat. 799; 34 U.S.C. 186) approved December 13, 1941, remain in effect, enlisted men of the Marine Corps and Marine Corps Reserve who have become disabled for general service by conditions originating in the line of duty, which under peacetime conditions would lead to their separation from the service, may be retained for the convenience of the government and assigned to duty commensurate with their physical disabilities under the following conditions which must be determined for each case:

(a) The man's services are desired, and his record is favorable.
(b) Disability is of such a nature as not to interfere with his performing useful duty.
(c) Retention on active duty is not likely to aggravate the disability.

3. Boards of medical survey will include in their reports a statement covering the following:

(a) Whether the individual's disability is of such a nature as to interfere with his performing useful duty;

(b) Whether his retention would be likely to result in aggravation of his disability;

(c) Outline the limits of duty of which the individual is capable;

(d) Provided he is not desired by the Marine Corps recommend his discharge from the service.

4. Men retained under this authority shall be eligible for promotion.

5. Men in the Regular Marine Corps so held shall be eligible for transfer to the Fleet Marine Corps Reserve upon completion of required service.

6. Men so retained whose enlistments expire will not be discharged expiration of enlistment with a view to reenlisting, until a waiver has been approved by the Commandant, U. S. Marine Corps.

7. Men so retained shall be brought before a board of medical survey for report and recommendation should they be unable to carry on the duties for which they have been retained, and likewise when their services are no longer required.

8. A man so retained may be reexamined on his own request or at any time that it may appear he has recovered from his disability, with a view to determining his fitness for all duties. If found physically qualified he shall be returned to general service upon approval of the Commandant, U. S. Marine Corps.

--MarCorps. T. Holcomb. --BuMed. Ross T. McIntire.

* * * * * *

31 May 1944
BUMED-X-FEW-III
L8-2/JJ57(042-43)

To: All Medical Officers

Subj: Penicillin Therapy, Discontinuance of Summary Monthly Reports of.

Ref: (a) BuMed ltr of Information and Instruction on the Use of Penicillin BUMED-X- FEW-III, L8-2/JJ57(042-43) dated 7 Jan 1944.

1. Reference (a) directed that, in addition to special articles reciting unusual results or experiences from the use of penicillin, routine monthly summary reports of cases treated be submitted to this Bureau.

2. The discontinuance (except as noted in paragraph 4) of routine monthly summary reports of cases treated with penicillin is hereby authorized. However, the Bureau desires that reports of cases treated with penicillin, which are considered of unusual interest, be continued.

3. The Bureau desires the reporting of any serious reactions following the administration of penicillin; reports to include the name of the manufacturer and lot number of the penicillin to which untoward reactions are attributed.

4. The following hospitals, originally allotted penicillin for investigative purposes, are requested to continue reporting penicillin-treated gonococcus infections on NavMed Form 139 and individual case reporting of all other penicillin therapy on NavMed Form 140:

Bainbridge, Md.
Bethesda, Md.
Chelsea, Mass.
Corpus Christi, Texas
Farragut, Idaho
Great Lakes, Ill.
Key West, Fla.
Long Beach, Calif.
Mare Island, Calif.
New Orleans, La.
Oakland, Calif.
Pearl Harbor, T. H.
Phila, Pa.
Portsmouth, Va.
St. Albans, N. Y.
Sampson, N. Y.
San Diego, Calif.
Seattle, Wash.
U. S. Fleet Hospital 105
U. S. Fleet Hospital 108

-- BuMed. Ross T. McIntire

LT. ELINOR D. RICH W-VS USNR.
BUREAU OF MEDICINE AND SURGERY,
NAVY DEPARTMENT,
WASHINGTON, D.C.